MAINE PUBLIC HEALTH ALERT NETWORK SYSTEM

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ADVISORY – Important Information*

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TO: **All HAN Recipients**

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SUBJECT: Eastern Equine Encephalitis (EEE) Update

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EEE Update - August 25, 2010

Eastern equine encephalitis (EEE) is a very serious viral infection that is transmitted by the bite of an infected mosquito. Although rare, this disease has potentially extremely severe consequences for those who contract it. All people and many organizations in Maine need to be aware of the health risks and protect themselves and those they serve from mosquito bites.

Background

In 2009, EEE killed animals (including horses, pheasants and a llama) in York, Cumberland, Kennebec, Waldo, and Penobscot Counties. Three-quarters of these cases were in Waldo and York Counties. Although Maine has not had any confirmed cases yet this summer of EEE, there is documented EEE activity in nearby states including a horse adjacent to the Maine border in New Hampshire, mosquitoes and horses in Massachusetts, and a man in Rhode Island. Aerial spraying of pesticides to combat EEE recently commenced in southeastern Massachusetts. EEE has also been detected in recent years in Nova Scotia, Quebec, and Ontario.

The risk for contracting EEE virus is highest at dusk to dawn and when temperatures are above 50 degrees (and especially above 60 degrees), since these are the conditions when mosquitoes are most actively biting. The risk is also felt to be higher in areas with previously-identified EEE and/or in areas near wetlands such as freshwater hardwood, red maple, and cedar wetlands as well as saltwater marshes.

Although many persons infected with EEE virus have no apparent illness, those who develop symptoms do so usually 3 to 10 days after the bite of an infected mosquito. Symptoms range from mild flu-like illness to seizures, coma, and death. About one-third of those who have symptoms of encephalitis will die, and approximately half of the survivors with encephalitis will have permanent disabilities. There is no known effective treatment. Although there is an EEE vaccine for horses, there is no vaccine available for humans.

EEE virus is primarily amplified in a cycle between song birds, which serve as a reservoir, and wetland mosquitoes. People at most risk are:

- People living, working, and visiting in or near wetlands or areas with previously-identified EEE;
- Persons over age 50 and younger than age 15 seem to be at greatest risk for developing severe disease.

Steps people should take to protect themselves from EEE include:

- When outdoors, use a US CDC-recommended effective **insect repellent** containing DEET, picaridin, IR3535, or oil of lemon eucalyptus on exposed skin and/or clothing. The repellent/insecticide permethrin can be used on clothing and be effective through several washes. Always follow the package directions. For details see http://www.cdc.gov/ncidod/dvbid/westnile/qa/insect_repellent.htm.
- **Cover up** with long-sleeve shirts, pants and socks when outdoors, and place mosquito netting over infant carriers when outdoors.

- **Clean up** unnecessary standing water around the yard and in such places as rain gutters and tires to reduce mosquito habitats. Repair window screens.

- **Vaccinate horses** (to protect horse's health; horses with EEE do not pose a risk to human health but do indicate human risk for EEE in the vicinity).

Mosquito Control Measures for Municipalities, Schools, Organizations, and Businesses: Organizations hosting outdoor activities such as athletic events, fairs, and field trips, especially those involving the hours around dusk or dawn or multi-hour attendance, involving large scale attendance (500 or more), or near an area in which EEE has already been identified during this or previous years, should implement comprehensive mosquito control strategies. These strategies include public education such as warnings and information prior to the event, signage at the event, and the availability of effective repellent for attendees (such as for purchase at or nearby the event). These strategies also include the hiring of a licensed commercial pesticide applicator company in order to assess a property, set up a mosquito surveillance program, and advise on mosquito control options. A list of licensed companies can be found at: http://www.maine.gov/agriculture/pesticides/public/mosquito_control_list.htm.

Unless the dusk temperature is forecast to be less than 50 degrees, **limit and even reschedule outdoor group evening activities** such as school athletic events so people are able to go indoors by one hour before sunset, or make sure everyone knows to use **insect repellent**.

School employees and volunteers must have written permission from parents or guardians before applying repellants to minor children: http://www.maine.gov/agriculture/pesticides/laws/documents/policies/BPC-policy_Insect-Repellents_10-2-09.doc.

All these recommendations are especially true in those areas with previously-identified EEE or in areas near wetlands such as freshwater hardwood, red maple, and cedar wetlands as well as saltwater marshes. However, the lack of identified EEE in an area of the state does not mean there is no risk.

Resources to learn more about mosquito control include:

- Maine Vector-Borne Disease Plan, and Resources for Municipalities http://www.maine.gov/dhhs/boh/ddc/epi/vector-borne/index.shtml
- Board of Pesticides Control at 207-287-2731 or www.thinkfirstspraylast.org (information on pesticide regulations, licensed applicators, pesticide effects)
- Maine Department of Environmental Protection (Maine DEP) information on pesticides and wetlands at: http://www.maine.gov/dep/blwq/topic/westnile/ or 207-287-3901 or 1-800-452-1942
- University of Maine Cooperative Extension at 1-800-287-0279,
- Maine Forest Service at 207-287-2431 or http://www.state.me.us/doc/mfs/mosquito.htm,
- CDC Guide Guidelines for Arbovirus Surveillance in the United States

It should be noted that there are approximately 45 different mosquito species in Maine, and not all of them can transmit the EEE virus to humans. Some mosquitoes only feed on birds, some on mammals, and some on both birds and mammals. Since the reservoir for EEE virus is birds, the

mosquito species of greatest concern for EEE are those that feed on both birds and mammals, called "bridge vectors". Comprehensive mosquito control strategies include a focus on reducing human exposure to mosquito species that can transmit diseases and include a variety of strategies that account for the species-specific habitats.

Human Diagnostic Tests for WNV (West Nile Virus) and EEE Infections

Clinical Suspicion: EEE should be considered based on clinical symptoms and patient history. Diagnosis relies on a high index of suspicion and on results of specific laboratory tests. EEE, WNV or other arboviral infections should be seriously considered in any individual who has onset of unexplained encephalitis, meningitis, or high fever in the late summer or early fall.

Laboratory Tests: Laboratory testing is required for a confirmed diagnosis. The most efficient diagnostic methods are listed below:

- Detection of IgM antibody in serum collected 3-10 days after onset of illness (note: if a specimen collected less than 10 days after onset of illness is negative, a convalescent serum should be collected and tested for IgM antibody 2-3 weeks after the first collection date).
- Detection of IgM antibody in cerebrospinal fluid collected 3 to 10 days after onset of illness (for persons with meningitis or encephalitis).

Diagnostic testing of serum and cerebrospinal fluid for WNV and EEE infections are available free of charge through Maine CDC's HETL (Health and Environmental Testing Laboratory). Preliminary results are usually available within 5 to 7 days. To ensure early public health identification of mosquito-borne human disease, Maine CDC requests that specimens from all patients who are being tested for WNV and EEE infection be submitted to HETL (even if specimens are also being sent to commercial laboratories).

Instructions for submitting a specimen and algorithms for testing are available at:
http://www.maine.gov/dhhs/etl/micro/submitting_samples.htm

For more information:

- For clinical consultation, call the Maine CDC at 1-800-821-5821
- Maine CDC EEE Website http://www.maine.gov/dhhs/boh/ddc/epi/vector-borne/index.shtml
- US CDC EEE Website http://www.cdc.gov/EasternEquineEncephalitis/index.html
- US CDC Insect Repellent Website http://www.cdc.gov/ncidod/dvbid/westnile/qa/insect_repellent.htm
- Maine Department of Agriculture Animal Health Website http://www.maine.gov/agriculture/ahi/index.html
- US CDC "Fight the Bite" Mosquito Website http://www.cdc.gov/ncidod/dvbid/westnile/prevention_info.htm
- Massachusetts Arboviral Website: http://westnile.ashtonweb.com/
- New Hampshire's Arboviral Website: http://www.dhhs.state.nh.us/DHHS/CDCS/West+Nile+Virus/arboviral-test.htm